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Dr. Jeet Ram Sharma

Associate Professor,
Department of Public
Administration, Govt.
National P.G. College, Sirsa,
Haryana, India

Effective Use of Big Data in Public Administration

Dr. Jeet Ram Sharma

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Abstract

Public administration involves the management and implementation of government policies, programs, and services to serve the public interest. It encompasses tasks such as policy formulation, resource allocation, service delivery, regulation, and citizen engagement. Traditionally, public administration relied on administrative processes, qualitative data, and conventional decision-making methods. These processes were often manual and paper-based, involving tasks such as record-keeping, document filing, and routine administrative tasks. Decision-making was often hierarchical, with decisions flowing through predefined channels of authority. In traditional public administration, qualitative data often included narratives, descriptions, case studies, interviews, and observations. Decision-making in traditional public administration was based on historical precedents, expert opinions, and established practices. Administrators relied on their experience and judgment to make decisions that were often influenced by political considerations, administrative norms, and past outcomes. However, with the advent of technology and the emergence of big data analytics, these traditional approaches have evolved significantly. Modern public administration has shifted towards digitalization and automation. Administrative processes are now streamlined through digital tools, databases, and electronic communication, reducing paperwork and improving efficiency. This data comes in structured, semi-structured, and unstructured formats and requires advanced technologies like data analytics, machine learning, and artificial intelligence to process and extract meaningful insights. This quantitative data offers a more objective and comprehensive understanding of issues compared to qualitative data alone.

Keywords: Management, implementation, efficiency, understanding, digitalization

Introduction

Public administration refers to the implementation of government policies, programs, and services to effectively manage public resources and serve the needs of the community. It involves the organization, management, and coordination of government activities at various levels, such as local, regional, national, and international. Public administrators work to ensure that government functions smoothly, efficiently, and in a way that benefits citizens and society as a whole. Public administrators play a critical role in designing and implementing policies that address societal issues, promote public welfare, and achieve government objectives. They collaborate with policymakers to translate political decisions into actionable plans. Public administrators are responsible for allocating government resources, such as budgets, personnel, and infrastructure, in a way that aligns with public priorities and delivers effective services. Public administrators manage and oversee the delivery of public services, including healthcare, education, transportation, social welfare, and more. They strive to ensure these services are accessible, efficient, and responsive to citizens' needs. Public administrators engage in strategic planning to set long-term goals, anticipate challenges, and create roadmaps for achieving desired outcomes. In fact, Public administration can take place in various contexts, including government agencies, non-profit organizations, international organizations, and intergovernmental bodies. Public administrators often work closely with elected officials, policymakers, community leaders, and citizens to achieve common goals and improve the well-being of society.

As technology advances and societal challenges evolve, the field of public administration continues to adapt to new demands, incorporating innovations like data analytics, digital transformation, and evidence-based practices to enhance governance and service delivery. Big data has applications across various industries, including finance, healthcare, marketing, logistics, and government, as organizations seek to gain valuable insights from these immense datasets to make informed decisions, identify trends, optimize operations, and innovate.

Corresponding Author:

Dr. Jeet Ram Sharma

Associate Professor,
Department of Public
Administration, Govt.
National P.G. College, Sirsa,
Haryana, India

Big data refers to extremely large and complex datasets that exceed the capabilities of traditional data processing and analysis methods. It encompasses the vast amount of information generated from various sources at high speeds and includes structured, semi-structured, and unstructured data. Big data involves massive amounts of data that exceed what traditional databases and software can handle. This data can come from various sources, including social media, sensors, transactions, and more. Data is generated and collected at an unprecedented speed. With the advent of the Internet of Things (IoT) and real-time systems, data can be produced and transmitted rapidly, requiring efficient processing and analysis to extract valuable insights in real time. Big data comes in diverse formats, including structured data (organized in tables or databases), semi-structured data, and unstructured data (text, images, audio, video). This variety presents a challenge in terms of processing and integrating different types of data.

Public administration and big data are two distinct concepts that have become increasingly intertwined in recent years, as governments and public institutions have started leveraging the power of data to enhance their decision-making processes, improve service delivery, and address various societal challenges. The integration of big data into public administration has the potential to revolutionize how governments operate and make decisions.

Policy Formulation and Decision-Making: Policy formulation and decision-making processes in public administration are significantly enhanced through the use of big data. Big data provides valuable insights, trends, and patterns that can inform policy development, improve decision-making, and lead to more effective governance. Big data analytics enable governments to analyze vast amounts of data to identify trends, patterns, and correlations. This information can inform evidence-based policy formulation and decision-making. For instance, analyzing healthcare data can help identify disease outbreaks, allocate medical resources, and design effective intervention strategies. It allows administrators to analyze vast amounts of diverse data from various sources, uncovering hidden insights that might not be apparent through traditional methods. These insights provide a solid foundation for understanding complex issues and identifying trends. By analyzing big data, public administrators can identify emerging issues and prioritize areas that require immediate attention. For instance, analyzing healthcare data might reveal areas with high disease prevalence, helping policymakers allocate resources more effectively. Big data analysis can reveal cost-effective solutions by identifying inefficiencies, redundancies, and areas where resources are underutilized. Big data facilitates real-time monitoring of policy implementation and its impact. Administrators can track progress, assess outcomes, and make necessary adjustments promptly. In times of crises or emergencies, big data helps administrators make rapid, informed decisions. For example, during a natural disaster, real-time data can guide evacuation plans and resource allocation. Big data enables a comprehensive understanding of complex issues by considering multiple variables and factors simultaneously. This leads to more holistic and effective solutions.

Service Delivery Optimization: The integration of big data into service delivery optimization empowers public

administrators to make data-driven decisions, enhance operational efficiency, and provide higher-quality services that meet the needs and expectations of citizens. Service delivery optimization with the help of big data involves using large and diverse datasets to enhance the efficiency, quality, and effectiveness of public services. By interpreting this data, public administrators can make informed decisions that lead to improved service outcomes, better resource allocation, and increased citizen satisfaction. Big data analytics can help identify patterns in resource usage, enabling administrators to allocate personnel, funds, and equipment more efficiently. For instance, analysis of transportation data can aid in optimizing routes and schedules for public transportation, reducing costs, and improving service frequency. By interpreting historical data and trends, big data can help predict fluctuations in demand for services. Administrators can prepare for peak periods and allocate resources accordingly, ensuring that services are available when and where they are needed the most. Big data enables administrators to monitor service quality through data-driven metrics. Feedback from citizens through social media, surveys, and online platforms to gain insights into areas that require improvement can be collected. This citizen feedback can guide service enhancements. Data insights enable administrators to make informed decisions, reducing the likelihood of errors and misallocation of resources. By identifying inefficiencies and optimizing processes, big data can contribute to cost savings in service delivery, making the most of limited resources.

Performance Evaluation: Incorporating big data into performance measurement and evaluation allows public administrators to move beyond traditional methods, offering a more accurate, timely, and evidence-based approach to assessing the effectiveness and impact of government initiatives. Performance measurement and evaluation are crucial aspects of public administration, and big data plays a significant role in enhancing the accuracy, timeliness, and comprehensiveness of these processes. Big data enables the collection of vast amounts of data from various sources, allowing for a comprehensive view of performance indicators. This includes data from administrative records, sensors, social media, surveys, and more. Using historical data and predictive analytics, administrators can forecast performance trends and potential outcomes. This helps in proactive decision-making and addressing issues before they escalate. Big data facilitates benchmarking by allowing administrators to compare performance across different departments, regions, or time periods. This comparison helps identify areas of excellence and areas that need improvement. Big data enables administrators to assess the actual outcomes and impact of policies and programs, going beyond mere outputs or activities. This data-driven evaluation contributes to evidence-based policy decisions. Real-time performance data from big data sources enables administrators to make dynamic adjustments to strategies and interventions. This ensures that efforts remain aligned with changing conditions. The insights from big data analysis support a culture of continuous improvement. Administrators can identify areas for enhancement, implement changes, and monitor the impact of those changes.

Citizen Engagement: Big data offers public administrators the tools to engage citizens in more meaningful and

participatory ways, promoting transparency, responsiveness, and collaboration in public administration. Big data can enhance citizen engagement by analyzing social media and online platforms to understand public sentiment and concerns. Big data analytics provides public administrators with the means to gather, analyze, and utilize vast amounts of information from citizens, enabling more informed decision-making, improved service delivery, and enhanced collaboration. This can help governments address issues that matter to their constituents. Citizen-generated data, including social media posts, online interactions, and feedback surveys, offers valuable insights into citizen preferences, opinions, and needs. Citizen data enables administrators to personalize services and interactions. By understanding individual preferences, administrators can tailor communications and services to better meet citizens' needs. Big data analytics can help predict trends and anticipate citizen demands. This enables administrators to proactively address issues and allocate resources in a manner that aligns with emerging needs. By involving citizens in data collection and analysis, public administrators can encourage the co-creation of policies and solutions. This participatory approach empowers citizens to contribute to decision-making processes. Big data allows administrators to assess the impact of policies and programs based on citizen feedback and engagement. This feedback loop helps in refining policies and making them more effective. By interpreting big data, administrators can identify and address social issues that might otherwise go unnoticed. For instance, analysis of social media posts can highlight emerging community concerns. Big data can foster collaborative governance by enabling administrators to work with citizens, community groups, and NGOs in addressing complex challenges.

Predictive Analysis: Incorporating predictive analysis with big data into public administration enables administrators to make informed, forward-looking decisions, leading to more efficient resource allocation, improved service delivery, and better outcomes for citizens and communities. Predictive analysis in public administration involves using big data to forecast future trends, behaviors, and outcomes. By analysing historical and real-time data, public administrators can make informed predictions that guide decision-making, resource allocation, and policy development. Public administrators can forecast demand for services and allocate budgets, personnel, and infrastructure more effectively. By analyzing historical consumption patterns and other relevant factors, predictive analysis can project future demand for public services, enabling administrators to plan for capacity expansion or adjustments. Law enforcement agencies can use predictive analysis to identify high-risk areas for criminal activities based on historical crime data. This enables the targeted deployment of resources to prevent crime. It helps administrators assess the potential impact of proposed policies before implementation. This allows for adjustments and refinements to ensure desired outcomes. By forecasting revenue trends and expenditure patterns, predictive analysis assists administrators in crafting budgets that align with anticipated financial conditions. Educational administrators can use predictive analysis to forecast student enrolment, dropout rates, and resource needs. This informs decisions on staffing, infrastructure, and curriculum development. It can help identify individuals or communities at risk of specific challenges, such as

unemployment or homelessness, allowing for early intervention and support. Public administrators can optimize the design and implementation of programs by predicting their potential impact and identifying areas for improvement.

Conclusion

The intersection of public administration and big data has ushered in a transformative era of governance, decision-making, and service delivery. The integration of big data analytics has brought about a paradigm shift in how governments operate, make informed choices, and engage with citizens. Big data's role in public administration has led to evidence-based decision-making that is grounded in quantifiable insights rather than assumptions. The vast volumes of data generated from diverse sources provide a comprehensive understanding of complex challenges, enabling policymakers to formulate more effective and targeted policies. By leveraging advanced analytics techniques, administrators can uncover hidden patterns, forecast trends, and anticipate future scenarios, thus enhancing the agility and responsiveness of public institutions. As governments adapt to the digital age, the integration of big data brings ethical considerations to the forefront. Striking a balance between data-driven decision-making and safeguarding individual privacy is paramount. Adhering to stringent data protection protocols ensures that the benefits of big data are harnessed without compromising citizens' rights and personal information. In essence, the usage of big data in public administration holds the promise of a more efficient, transparent, and citizen-centric governance model. By capitalizing on the insights and predictive power of big data, governments can navigate complex challenges, enhance service delivery, and ultimately create societies that are better equipped to address the ever-changing needs of their citizens.

References

1. Johnston, Erik. *Governance in the Information Era: Theory and Practice of Policy*; c2015.
2. Rajendran PK, Asbern A, Kumar KM, Rajesh M, Abhilash R. Implementation and analysis of Map Reduce on Biomedical Big Data. *Indian Journal of Science and Technology*. 2016;9(31):1-6.
3. Rubinstein IS. Big data: The End of Privacy or a New Beginning? *International Data Privacy Law*; c2013, 3(2).
4. Singh B, Kaur M. A Survey on Big Data: Challenges, Tools and Technique. In *International Journal of Advanced Research in Computer Science*; c2016, 7(6).
5. www.in.capgemini.com/media-analysts/resources/video/big-data-in-the-public-sector